

What is claimed is:

1. An autonomous vacuum cleaner comprising:
a first module including a suction source;
a hose connected at a first end to said first module and in fluid communication with said suction source; and
a second module spaced from said first module and connected to a second end of said hose, said second module comprising:
a drive housing, including a drive system to propel said second module, and
a nozzle section pivotally mounted to said drive housing, said nozzle section including a suction opening in fluid communication with said hose.
2. The vacuum cleaner of claim 1, wherein said drive system includes a first drive motor operating a first driven wheel and a second drive motor operating a spaced second driven wheel.
3. The vacuum cleaner of claim 2, wherein each of said drive motors includes an output shaft and each of said driven wheels is mounted on an axle, wherein said output shafts are oriented approximately perpendicular to said axles.
4. The vacuum cleaner of claim 2, wherein each of said drive motors engage each of said driven wheels via a clutchless transmission.
5. The vacuum cleaner of claim 1, wherein said drive system includes a first driven wheel and a spaced second driven wheel, wherein each of said wheels can be driven independently of the other.
6. The vacuum cleaner of claim 5, wherein said second module further includes an omni wheel, said omni wheel being spaced from said first and second driven wheels.
7. The vacuum cleaner of claim 5, wherein each of said driven wheels includes a gear reduction mechanism.
8. The vacuum cleaner of claim 5, wherein said first driven wheel can be driven in an opposite direction from said second driven wheel such that said cleaning head module rotates about a point substantially near the geometric center of said second module.

9. The vacuum cleaner of claim 5, wherein each of said driven wheels includes an odometer attached thereto.
10. The vacuum cleaner of claim 1, wherein said second module further includes a bumper, wherein said hose extends over said bumper.
11. The vacuum cleaner of claim 10, wherein said drive housing defines a channel having a bottom wall for receiving a portion of said hose, wherein the bottom wall is positioned such that said hose is accommodated in said channel so that a highest point of said hose is positioned below a highest point of said cleaning head.
12. The vacuum cleaner of claim 1, wherein a bumper is pivotally mounted to said drive housing.
13. The vacuum cleaner of claim 1, wherein said nozzle section includes a brushroll motor and a brushroll mounted adjacent said suction opening, wherein said motor powers said brushroll.
14. The vacuum cleaner of claim 13, further comprising a transmission for connecting said brushroll motor to said brushroll.
15. The vacuum cleaner of claim 14, wherein said transmission comprises at least one of a belt and gear.
16. The vacuum cleaner of claim 13, wherein said second module includes a sensor to detect the type of floor to be vacuumed, wherein said sensor communicates with said brushroll motor.
17. The vacuum cleaner of claim 1, wherein said second module includes at least one bumper attached to said nozzle section.
18. The vacuum cleaner of claim 17, wherein said at least one bumper includes a first corner bumper and a second corner bumper.

19. The vacuum cleaner of claim 18, wherein said at least one bumper further includes a front bumper attached to said nozzle section between said first and second corner bumpers.
20. The vacuum cleaner of claim 19, wherein said front bumper includes a pair of opposed serrated edges and said first corner bumper and said second corner bumper each includes an adjacent serrated edge that complements a respective one of said serrated edges of said front bumper.
21. The vacuum cleaner of claim 1, wherein said second module includes at least one bumper attached to a wall of said drive housing.
22. The vacuum cleaner of claim 21, wherein said at least one bumper includes an indented central portion to accommodate said hose extending thereover.
23. The vacuum cleaner of claim 21, wherein said at least one bumper includes two substantially semicircular bumpers attached to said wall of said drive housing.
24. The vacuum cleaner of claim 23, wherein each of said bumpers terminates with an end that is substantially aligned with an outermost side wall of said drive housing.
25. The vacuum cleaner of claim 1, wherein said second module includes at least one sensor to detect the presence or absence of a floor to be vacuumed.
26. The vacuum cleaner of claim 25, wherein said drive system includes a driven wheel, said sensor spaced far enough from said driven wheel such that said cleaning head module is supported on the floor to be vacuumed when said sensor detects an absence of the floor to be vacuumed.
27. The vacuum cleaner of claim 1, wherein said nozzle section is electronically connected to said drive housing via a wire harness.
28. The vacuum cleaner of claim 1, further comprising a drive system disposed in said first module to propel said first module.

29. An autonomous vacuum cleaner comprising:
a first module including a suction source, a dirt container, and a first drive system for propelling said first module;
a hose connected at a first end to said first module and in fluid communication with said suction source and said dirt container; and
a second module spaced from said first module and connected to a second end of said hose, said second module including
a suction opening in fluid communication with said hose,
a second drive system to propel said second module, and
at least one bumper attached to said second module by an attachment arm.
30. The vacuum cleaner of claim 29, further comprising a biasing member interposed between said attachment arm and a wall of said second module.
31. The vacuum cleaner of claim 29, wherein said attachment arm is pivotally connected to said second module.
32. The vacuum cleaner of claim 29, wherein said attachment arm includes a shutter that communicates with a sensor to detect movement of said arm and to communicate with said drive system.
33. The vacuum cleaner of claim 29, wherein said at least one bumper includes a first substantially semi-circular bumper and a second substantially semi-circular bumper.
34. The vacuum cleaner of claim 29, wherein said at least one bumper includes an indented central portion.
35. The vacuum cleaner of claim 29, wherein said at least one bumper includes an upper bumper.
36. The vacuum cleaner of claim 29, wherein said at least one bumper includes a first bumper having a serrated edge and a second bumper having a serrated edge, wherein the serrated edge of the first bumper complements the serrated edge of the second bumper such that portions of each bumper overlap one another but do not contact one another.

37. The vacuum cleaner of claim 36, wherein said second bumper includes a substantially perpendicular bend to at least partially surround a corner of said second module.